

IN THE CLAIMS:

Please AMEND claims 1-2, 4, and 6-19; and

Please ADD claims 20-21, as shown below.

1. (Currently Amended) A method ~~for strong authentication achieved in a single round trip~~, comprising:

sending a random number to a mobile node, wherein the random number is generated local to the mobile node, wherein the random number is generated by a base station;

generating a mobile node signature using the mobile node, wherein the mobile node signature is generated using the random number;

authenticating the mobile node to a network, wherein the network is a ~~GPRS~~general packet radio service network; and

authenticating the network to the mobile node,
wherein the authenticating the mobile node to the network and the authenticating the network to the mobile node is performed in a single round trip while the mobile node is roaming.

2. (Currently Amended) The method of claim 1, wherein authenticating the mobile node to the network, further comprises

sending the mobile node signature to an authentication server, and

verifying, by the authentication server, the mobile node signature.

3. (Cancelled)

4. (Currently Amended) The method of claim 2~~1~~, wherein authenticating the network to the mobile node, further comprises

generating an authentication signature by the authentication server; and
sending the authentication signature to the mobile node.

5. (Previously Presented) The method of claim 4, further comprising:
verifying, by the mobile node, the authentication signature.

6. (Currently Amended) The method of claim 5~~1~~, wherein the authentication server is a home authentication server (~~AAAH~~).

7. (Currently Amended) The method of claim 6, wherein sending the mobile node signature to the home authentication server~~AAAH~~, further comprises

sending the mobile node signature to a local authentication server (~~AAAF~~),
wherein local authentication server~~AAAF~~ is located in a foreign domain and forwards the signature to the home authentication server~~AAAH~~.

8. (Currently Amended) The method of claim 7, further comprising:
determining when the mobile node signature is not verified, and when the mobile node signature is not verified ending the strong authentication.

9. (Currently Amended) The method of claim 8, further comprising
determining when the authentication signature is not verified, and when the authentication signature is not verified ending the strong authentication.

10. (Currently Amended) A system ~~for strong authentication achieved in a single round trip between a mobile node and a network~~, comprising:

a mobile node that is configured to generate a mobile node signature in response to a random number received from a source within a domain local to a current position relating to the mobile node and send the mobile node signature to be verified, wherein the random number is generated by a base station;

the authentication server located within a home domain associated with the mobile node that is configured to receive the mobile node signature, verify the mobile node signature, and in response to the verification of the mobile node signature that indicates that the mobile node is verified to ~~the~~ a network, wherein the network is a ~~GPRS~~ general packet radio service network, return an authentication signature to the mobile node,

wherein the verification of the mobile node by the authentication server and verification of the authentication signature by the mobile node is performed in a single round trip while the mobile node is roaming.

11. (Currently Amended) The system of claim 10, wherein the source comprises a the base station, wherein the base station is within the domain local to the mobile node and is configured to generate the random number and send the random number to the mobile node.

12. (Currently Amended) The system of claim 10, ~~further comprising:~~ wherein the mobile node is configured to verify the authentication signature, and, ~~if~~ when the authentication signature is verified, ~~to authenticating~~ authenticate the network to the mobile node.

13. (Currently Amended) The system of claim 11, ~~further comprising:~~ wherein the mobile node is configured to verify the authentication signature, and, ~~if~~ when the authentication signature is verified, ~~to authenticating~~ authenticate the network to the mobile node.

14. (Currently Amended) The system of claim ~~13~~10, wherein the authentication server is a home authentication server (~~AAA~~H).

15. (Currently Amended) The system of claim 14, wherein ~~sending the mobile node signature to be verified, further comprises the mobile node is configured to send the mobile node signature to a local authentication server (AAAF), and the local authentication server AAAF is configured to forward the signature to the AAAH home authentication server.~~

16. (Currently Amended) The system of claim 15, wherein the home authentication server AAAH is further configured to send the authentication signature to the local authentication server AAAF, wherein the local authentication server AAAF is ~~arranged~~ configured to send the authentication signature to the mobile node.

17. (Currently Amended) The system of claim 16, wherein the home authentication server AAAH is further configured to determine when the mobile node signature is not verified, and, when the mobile node signature is not verified, to end the strong authentication.

18. (Currently Amended) The system of claim 17, wherein the mobile node is further configured to determine when the authentication signature is not verified, and, when the authentication signature is not verified, to end the strong authentication.

19. (Currently Amended) ~~A system for strong authentication between a mobile node and a network~~, comprising:

a base station for generating a random number local to the mobile node;

a means for sending the random number to the mobile node

a means for generating a mobile node signature using the mobile node, wherein the mobile node signature is generated using the random number;

a means for sending the mobile node signature to an authentication server within a ~~GPRS~~general packet radio service network, and

verifying by the authentication the mobile node signature; and in response to the verifying, generating an authentication signature and sending the authentication signature to the mobile node for verification,

wherein the verification of the mobile node by the authentication server and verification of the authentication signature by the mobile node is performed in a single round trip while the mobile node is roaming.

20. (New) A base station, comprising:

a random number generation unit configured to generate a random number;

a transmission unit configured to send the random number to a mobile node that is roaming and is connected to the base station;

a reception unit configured to receive a mobile node signature generated by the mobile node using the random number;

an authentication unit configured to authenticate the mobile node to a network by communicating with an authentication server, wherein the network is a general packet radio service network; and

a provision unit configured to provide an authentication signature to the mobile node,

wherein the authenticating the mobile node to the network and the providing the authentication signature to the mobile node is performed in a single round trip.

21. (New) A base station, comprising:

random number generation means for generating a random number;

transmission means for sending the random number to a mobile node that is roaming and is connected to the base station;

reception means for receiving a mobile node signature generated by the mobile node using the random number;

authentication means for authenticating the mobile node to a network by communicating with an authentication server, wherein the network is a general packet radio service network; and

provision means for providing an authentication signature to the mobile node,

wherein the authenticating the mobile node to the network and the providing the authentication signature to the mobile node is performed in a single round trip.